

What is claimed is:

1. In a system having a primary storage volume having first data stored thereon and a secondary storage volume having second data stored thereon, the primary storage volume coupled to the secondary storage volume by a communications link, a method of restoring data after a suspension of the link, the method comprising:

upon suspension of the link, maintaining a first image of the first data stored on the primary volume and maintaining a second image of second data stored on the secondary volume;

tracking updates to the first data and updates to the second data after suspension of the link;

revising the image of the first data to account for the updates to thereby provide a complete first data image for use when the link is restored;

revising the image of the second data to account for the updates to thereby provide a complete second data image for use when the link is restored; and

copying data between the primary volume and the secondary volume when the link is restored to thereby resynchronize the primary volume and the secondary volume.

2. A method as in claim 1 wherein the step of maintaining an image comprises on at least one of the primary storage volume and the secondary storage volume:

creating a bitmap table to record a status of all of the data on the volume;

establishing a reserved area for storage of the data; and

copying all of the data to the reserved area.

3. A method as in claim 1 wherein the step of maintaining an image comprises on at least one of the primary storage volume and the secondary storage volume comprises maintaining a record of a log sequence number at the time of suspension of the link.

4. A method as in claim 1 wherein the step of maintaining an image comprises creating an old data table to maintain a record of all of the data at the time of suspension of the link.

5. A method as in claim 1 wherein the step of tracking updates comprises on at least one of the primary storage volume and the secondary storage volume creating a bitmap table to record all blocks of data which are updated after suspension of the link.

6. A method as in claim 1 wherein the step of tracking updates comprises on at least one of the primary storage volume and the secondary storage volume recording updates to the data as a record of the log sequence numbers occurring after suspension of the link.

7. A system for restoring data after an interruption in a communications link comprising:

a primary storage volume having first data stored thereon;

a secondary storage volume having second data stored thereon, the primary storage volume being coupled to the secondary storage volume by the communications link;

a first storage controller for maintaining a first image of the first data stored on the primary volume upon the interruption in the communications link;

a second storage controller for maintaining a second image of the second data stored on the secondary volume upon the interruption in the communications link;

a first update storage for storing updates to the first data after the interruption in the communications link;

a second update storage for storing updates to the second data after the interruption in the communications link;

the first storage controller revising the image of the first data to account for the updates to thereby provide a complete first data image for use when the link is restored;

the second storage controller revising the image of the second data to account for the updates to thereby provide a complete second data image for use when the link is restored; and

at least one of the first and the second storage controllers revising the data on the secondary storage volume to match the data on the primary storage volume after the link is restored.

8. A system as in claim 7 wherein first storage controller maintains an image of the primary storage volume upon interruption of the link by creating a bitmap table

to record a status of all of the data on the volume, establishing a reserved area for storage of the data; and copying all of the data to the reserved area.

9. A system as in claim 7 wherein the storage controllers store on a selected volume an image of the volume by maintaining a record of a log sequence number at the time of suspension of the link.

10. A system as in claim 7 wherein the storage controllers create an old data table to maintain a record of all of the data at the time of suspension of the link.

11. A system as in claim 7 wherein the storage controllers each create a bitmap table to record all blocks of data which are updated after suspension of the link.

12. A sub-system for restoring data after an interruption in a communications link comprising:

- a primary storage volume having first data stored thereon;
- a first storage controller for maintaining a first image of the first data stored on the primary volume upon the interruption in the communications link;
- a first update storage for storing updates to the first data after the interruption in the communications link; and
- the first storage controller revising the image of the first data to account for the updates to thereby provide a complete first data image for use when the link is restored.

13. A sub-system as in claim 12 wherein the first storage controller maintains an image of the primary storage volume upon interruption of the link by creating a bitmap table to record a status of all of the data on the volume, establishing a reserved area for storage of the data; and copying all of the data to the reserved area.

14. A sub-system as in claim 12 wherein the first storage controller stores on a selected volume an image of the volume by maintaining a record of a log sequence number at the time of suspension of the link.

15. A sub-system as in claim 12 wherein the first storage controller creates an old data table to maintain a record of all of the data at the time of suspension of the link.

16. A sub-system as in claim 12 wherein the storage controllers each create a bitmap table to record all blocks of data which are updated after suspension of the link.